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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,498	03/21/2001	Sharada Yeluri	004-5094	2092

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EXAMINER

PAN, DANIEL H

ART UNIT	PAPER NUMBER
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2183

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/813,498

Applicant(s)

YELURI, SHARADA

Examiner

Daniel Pan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Claims 1-20 remain for examination. Claims 21-31 are newly added.
2. As to the applicant's remarks filed on 08/26/04, the Applicant's arguments with respect to claims 1, 11, 17 have been considered but are moot in view of the new ground(s) of rejection.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 8-12, 14, 17, 19, 20, 21, 23, 24, 26-31 are rejected under 35 U.S.C. 102(a) and (b) as being anticipated by Kurosawa (5,881,264).
4. As to claims 1, 2, 8, 9, 10, 12, 14, 17, 19, 27, 28, Kurosawa disclosed a system with a main memory with a scoreboard (see fig.2) comprising at least :
  - a) associating (or a module) an instruction [READ] with an index value [address] (see fig.3, col.6, lines 23-36;
  - b) associating (or a module) the instruction with a scoreboard entry [No.] corresponding to the index value (see fig.3, see also fig.54 with the execution unit);
  - c) receiving an indication [synchronization] that a terminal event associated with the instruction has occurred (see the memory access instruction completion in col.9, lines 1-7, see also the invalid bit [I] in col.8, lines 4-12, lines 49-53);

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d( invalidating the scoreboard entry [ invalid bit I] associated with the instruction a associated with terminal event (see the memory access instruction completion in col.9, lines 1-7, see also the invalid bit [I] in col.8, lines 4-12, lines 49-53);

e) execution stage unit for returning scoreboard indices for respective instruction code (see fig.325, lines 41-62).

5. As to claims 3, 11, 20, 24, since no specific format of "a load instruction" has been reflected into the claim, the load instruction is interpreted as any instruction capable of reading content from memory. Kurosawa was also directed to the association of a load instruction, see the READ instruction, a load means reading from memory, a store means writing into memory). As to the long latency instruction, a read instruction is a long latency instruction because it takes longer time to read from a memory than from a register.

6. As to claim 5, Kurosawa also included an index (see fig.3 address encoding in the scoreboard).

As to claim 21, Kurosawa also including locate an entry in a scoreboard for a n instruction with index returned from execution (see col.6, lines 33-52), and modified the located entry (see the set and reset of the flags in scoreboard entry in col.6, lines 47-62).

7. As to claim 23, Kurosawa also maintained the index until the terminating event (see the free entry in col.9, lines 1-7).

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8. As to claim 26, Kurosawa also stalled until eh index returned (see the holding of the order flag for the same address access in col.25, lines 1-32).

9. As to claims 29,30,31 Kurosawa also unlocked the entry [order =0] , and stalled the instruction dependent on the operands in the entries (see the order flag in the scoreboard fig.43), locked the entry (order flag = 1) if indicated valid [v] , and unlocked [order flag= 0] if invalid [I]).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4,6,7,13, 15,16, 18, 22,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosawa 5,881,264 in view of Ramagopal et al. (6,473,832) .

11. As to claims 4, 6,7,13, 15,16, 18, limitations of the parent claims have been discussed in paragraph #1, therefore, it will not repeated herein. Kurosawa did not specifically show the load data has been received nor the forwarding (or receiving) the index value and the instruction to a load /store processing unit as claimed.

However, Ramagopal disclosed an indication of load data has been received (col.12, lines 16-63) and a load/store unit (e.g. see fig.1 [26]). It would have been obvious to one of ordinary skill in the art to use Ramagopal in Kurosawa for including the indication of load data and forwarding (or receiving) the index value and the instruction

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to the load/store unit as claimed because the use of Ramagopal could provide Kurosawa the capability of the control circuit to adapt to particular access conditions of a given load or store instruction, thereby reducing the processing overheads of the control p[rocessor of Kurosawa, and it could be readily done by configuring the read/write port of load/store unit of Ramagopal into Kurosawa with modified control parameters, such as the port width and data type, so that the load /store unit of Ramagopal could be recognized by Kurosawa in order to achieve the enhanced , in doing so, provided a motivation.

12. As to claims 22,25, Kurosawa did not specifically show the load/store unit as claimed. However, Ramagopal disclosed a load/store unit (see fig.1 [26]). ]. It would have been obvious to one of ordinary skill in the art to use Ramagopal in Kurosawa for including the load/store unit as claimed, and the reasons of obviousness have been given in the paragraph above, therefore, it will not be repeated herein.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Motomura et al. (5,305,458) is cited for the teaching of the load instruction associated with an index value (e.g. see the X2 instruction field in col.5, lines 15-25).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Pan whose telephone number is 703 305 9696, or the new number 571 272 4172. The examiner can normally be reached on M-F from 8:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan, can be reached on 703 305 9712, or the new number 571 272 4162. The fax phone number for the organization where this application or proceeding is assigned is 703 306 5404.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*21 Century Strategic Plan*

  
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